

## Claims

[1] A motor driving apparatus including a power supply source, a DC/DC converter, an inverter, and a DC link capacitor, said DC link capacitor being connected between said inverter and said DC/DC converter and smoothing a voltage applied thereto, characterized in that said motor driving apparatus makes a frequency of an inverter carrier signal for driving said inverter be synchronized with a frequency of a DC/DC converter carrier signal for driving said DC/DC converter, and controls a phase difference between both said carrier signals based on a ratio of an input voltage inputted to said DC/DC converter and an input voltage inputted to said inverter.

[2] The motor driving apparatus according to Claim 1, characterized in that the frequency of the DC/DC converter carrier signal is twice as high as that of the inverter carrier signal.

[3] The motor driving apparatus according to Claim 1, characterized in that the phase difference between both the carrier signals is also determined based on a percentage of modulation and a power factor which are operation parameters of the inverter.

[4] The motor driving apparatus according to Claim 1, characterized in that the DC/DC converter is provided with two DC/DC converters, and is driven in two phases, and the frequency of the DC/DC converter carrier signal is equal to that of the inverter carrier signal.

[5] The motor driving apparatus according to Claim 1, characterized in that the DC/DC converter is provided with two DC/DC converters, and is driven in two phases, the frequency of the DC/DC converter carrier signal is twice as high as that

of the inverter carrier signal, and a phase difference between carrier signals of said two DC/DC converters is determined based on a percentage of modulation which is an operation parameter of the inverter.